Concussion Management Primer for Primary Care

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Disclosures

• I have NO financial interest or other relationships with manufacturer(s) of any commercial product discussed in this presentation.
Objectives

- Identify the need for providers willing AND educated in the diagnosis and treatment of concussion.
- Summarize a standardized approach to the evaluation of concussion.
- Recognize resources available to the primary care provider to aid in the treatment of concussion.
Concussion “By the Numbers”

- 2.5 million people in U.S. suffer TBI annually
- Direct and indirect costs = $60 billion annually
  - Including lost productivity
• These numbers are **vastly** underestimated
  • Patients presenting to ER
  • Moderate to severe injury overrepresented
  • How many mild to moderate TBI (concussion)?
Forces at Play

Legislation

Social Media

Legal System
Utah Valley Concussion Clinic Experience

• 2013: ~ 1,000 visits
• 2014: ~ 1,100 visits
• 2015: ~ 1,300 visits
• 2016: est. 1,500 visits
  – ↑ in WC/MVA patients
Who is going to see these patients?
DOCTOR
BECAUSE SUPERHERO
ISN'T AN OFFICIAL
JOB TITLE
What are the obstacles that Primary Care faces with concussion?
Concussion CPM

- Aimed particularly to the Primary Care Provider
- Assist in the diagnosis, evaluation, AND management
- “The Making of a Care Process Model”
ALGORITHM 1: CONCUSSION DIAGNOSIS

Does patient have direct/indirect head trauma consistent with concussion? (a)

- yes
  - CONDUCT Initial Evaluation
    - Gather history using concussion assessment protocol (b) (e)
    - Perform concussion-specific physical exam (c)

  - Did acute symptoms include at least one of the following?:
    - Loss of consciousness
    - Loss of memory
    - Alteration in mental state
    - Transient focal neurologic deficit(s)
  
  - no
  - Did symptoms include at least two other acute symptoms? (d)
  
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        - S06.0X0A Concussion without loss of consciousness
        - S06.0X1A Concussion with loss of consciousness ≤30 minutes
        - S06.0X9A Concussion with loss of consciousness of unspecified duration
      
    - no
      - Are there any red flags? (e)
      
        - yes
          - CONSIDER referral for immediate evaluation at an emergency department
        
        - no
          - CONSIDER other diagnoses and MANAGE according to clinical judgment

    - no
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MANAGE as concussion (see Page 4)
### ALGORITHM 1 NOTES

#### (a) HEAD TRAUMA

This definition includes:
- the head being struck
- the head striking an object
- the brain undergoing an acceleration/deceleration movement (i.e. whiplash) without direct external trauma to the head

#### (b) HISTORY

- Mechanism of injury
- Associated symptoms at time of injury
- Current concussion-like symptoms (link to "Post-Concussion Symptom Scale")
  - Physical/cognitive activity tolerances
- Concussion/head trauma history
  - Time course for recovery from any prior injuries
- Comorbidities
  - Especially ADD/ADHD, learning disabilities, mental health diagnoses (i.e. anxiety, depression), history of migraine or other headache.
- Current medications
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<th></th>
<th>Symptoms</th>
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<td>4</td>
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<td>4</td>
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<td>3</td>
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</tbody>
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Are there any red flags? (e)

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MANAGE as concussion (see Page 4)
<table>
<thead>
<tr>
<th>New symptoms that present within 72 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Headache</td>
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<tr>
<td>- Nausea/vomiting</td>
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<tr>
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<tr>
<td></td>
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<tr>
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</tr>
<tr>
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MANAGE as concussion (see Page 4)
(e) RED FLAGS FOR EMERGENT EVALUATION

- Glasgow Coma Scale <13
- Loss of consciousness >60 seconds
- Post-traumatic amnesia >1 day
- Persistent vomiting or headache
- Persistent focal neurologic deficits
- Declining level of consciousness
- Deteriorating mental status
- Cervical spine bony tenderness
- Seizure
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### Physical Exam

**Behavioral Observation** (e.g., behaviors, speech patterns, level of arousal)

**Mental Status Exam**
- Brief orientation questions
- Immediate 5-word memory
- Digits backwards (3-, 4-, 5-, and 6-digit sequences)
- Months in reverse order
- Delayed 5-word recall (this can be performed later in the exam if more time is required — at least 5 minutes)

**Brief Cranial Nerve Exam**
- Pupillary reaction (III)
- Extraocular eye movements (III, IV, and VI)
- Smile, wrinkle forehead, puff cheeks, clench teeth (V, VII)

**Cervical Spine**
- Palpation of midline spine and paraspinal musculature to look for points of tenderness and myofascial trigger points (this may provoke or modulate headache, dizziness, or nausea symptoms)
- Range of motion (including flexion, extension, rotation, and side-bending)

**Upper Shoulders** (trapezius, levator scapulae, and sternocleidomastoid [SCM])
- Palpation of musculature for tenderness and myofascial trigger points (this may provoke/modulate concussion-like symptoms, especially headache)

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*The following portion of the physical exam is to be performed if diagnosis of concussive is not initially evident, or if considering clearance for return-to-play/work:*

**Focused Upper and Lower Extremity Sensorimotor Exam**

**Vestibular Ocular Motor Screening (VOMS)**
- Evaluating for reproduction/provocation of headache, dizziness, nausea, and/or fogginess
- Smooth pursuits (performed previously with extraocular muscle movement)
- Horizontal/vertical saccades: (1) Two fingers are held 3 ft from patient and 3 ft apart, then (2) Patient is asked to quickly shift focus horizontally, then vertically, from one finger to the other repetitively for 10 repetitions
- Near-point convergence: (1) Patient focuses on small target (~14 font size) at arm’s length and slowly brings target toward the tip of the nose, (2) Patient stops moving the target if/when they see two distinct images, (3) Distance is measured between target and tip of nose, (4) Repeat 3 times, (5) Abnormal if >5 cm.

- Vestibular ocular reflex (horizontal and vertical): (1) A single finger is held up 3 ft in front of patient at midline, (2) Patient rotates head side to side to 20° in either direction, performing 10 revolutions at ~180 beats/minute, (3) Repeat vertically as well (this has the highest symptom provocation).

- Visual motion sensitivity: (1) Patient holds thumb at arm’s length, (2) Maintaining focus on thumb, patient rotates upper body about the waist 80° to the right and left, (3) Performs 5 revolutions.

**Balance Testing**
- Unipedal stance test: (1) Patient stands unassisted on one leg with both hands on hips, (2) Time is recorded (in seconds) from raising of the foot until foot touches the ground and hands leave the hips, (3) Repeat with eyes open and closed, (4) Repeat on each leg, (5) See normative values
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Brief Management Options

- Relative Rest
- Sleep
- Active Symptom Self-Management
- Proactively treat head/neck pain
- DHA Omega-3, 1000mg BID
- 1 week follow-up
- Refer to Concussion Clinic
Thank you!